

FIG. 1

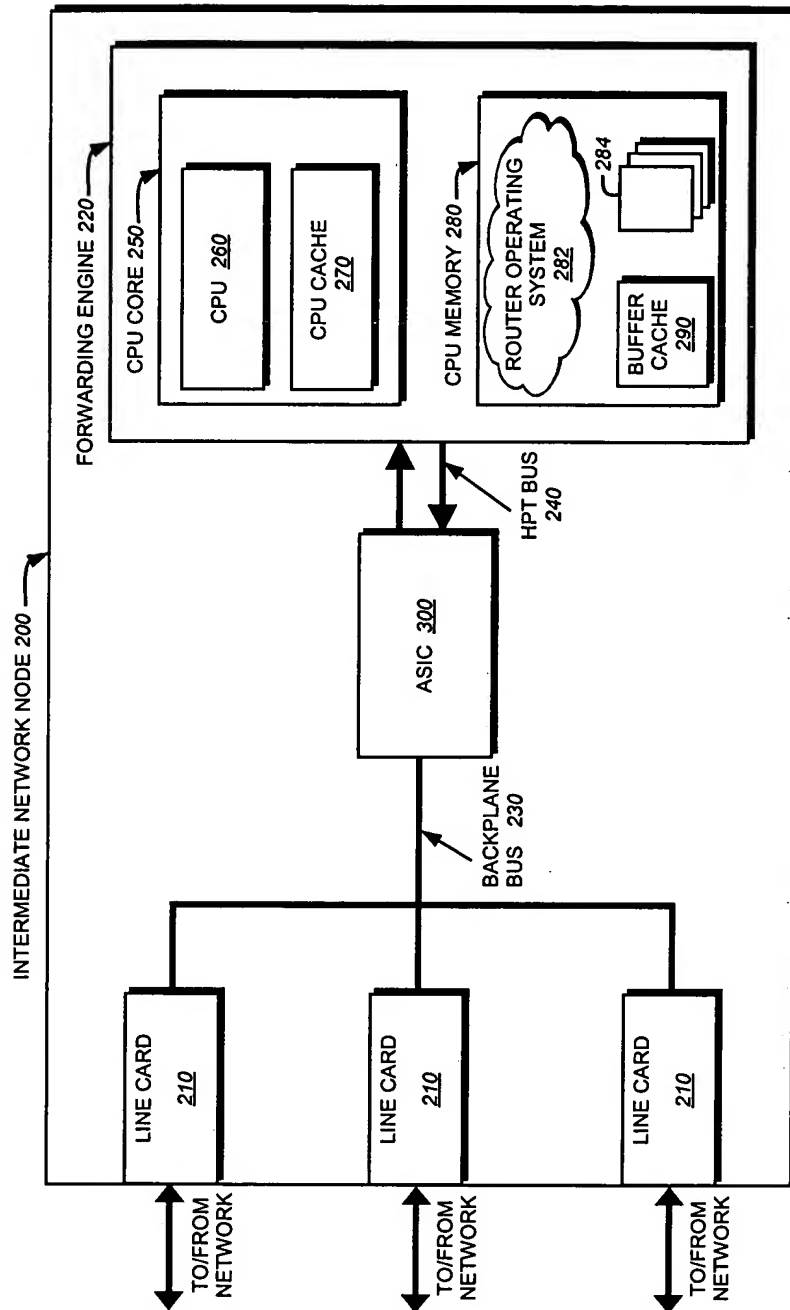


FIG. 2

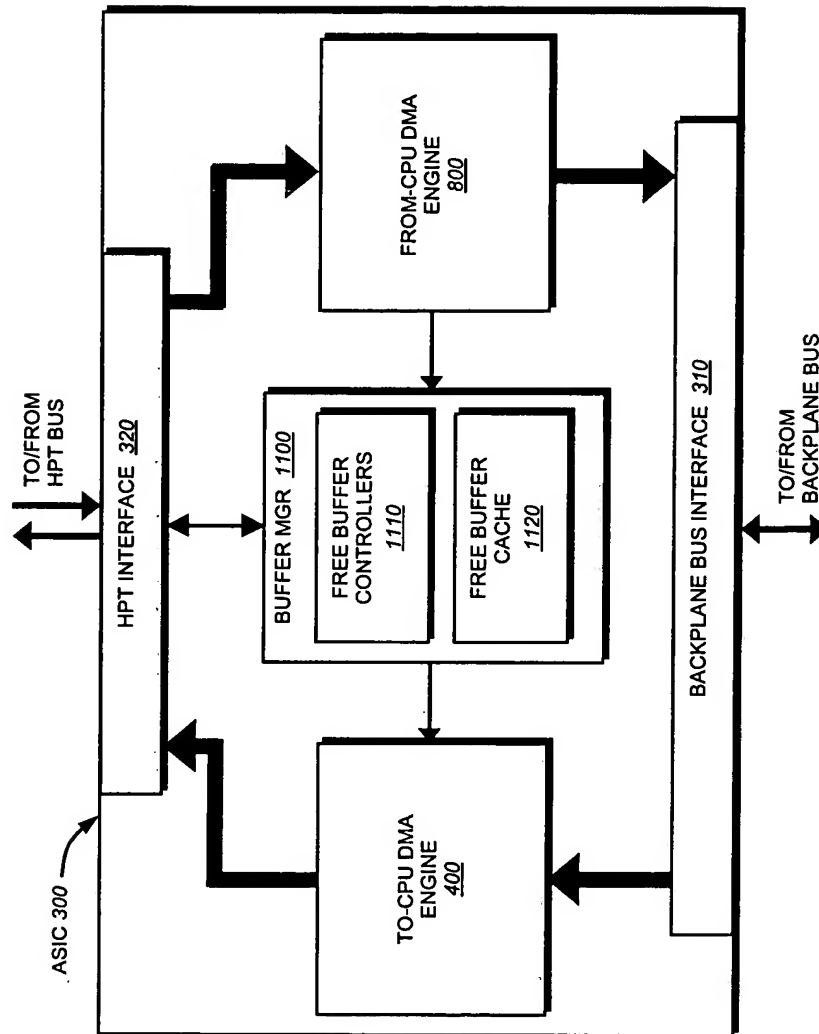


FIG. 3

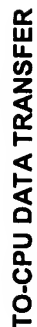


FIG. 4

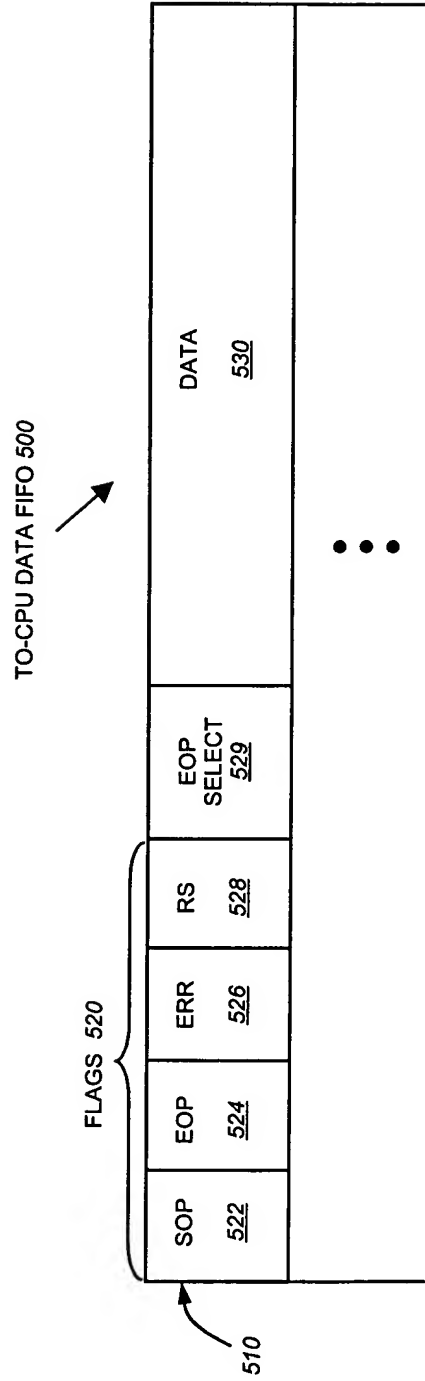
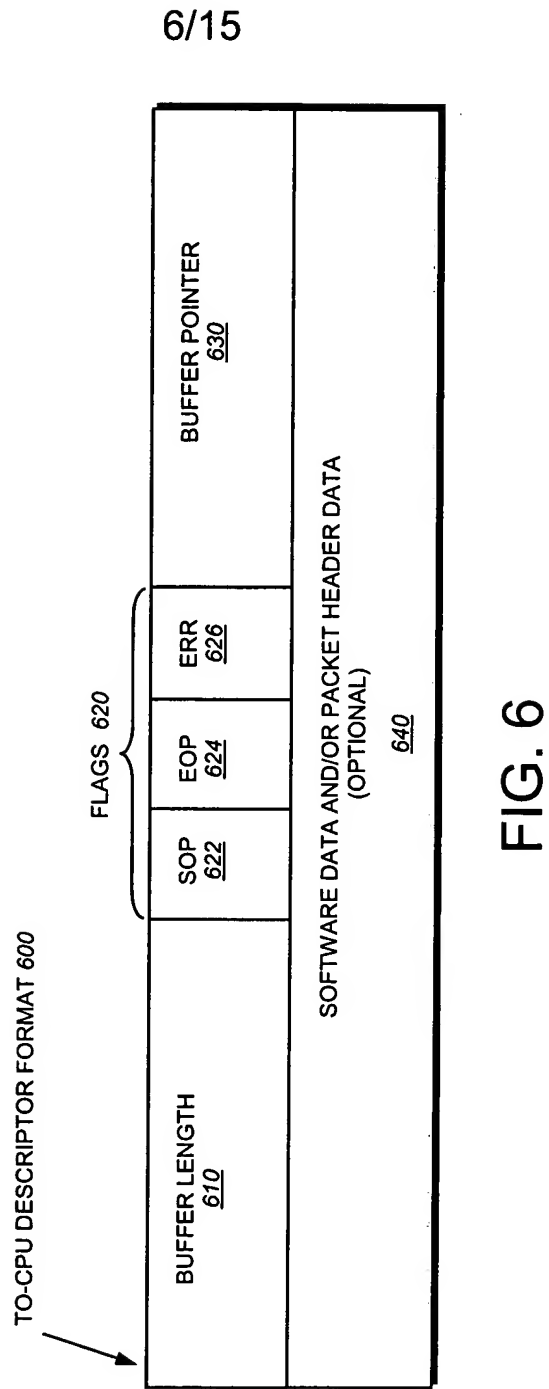


FIG. 5



GENERAL CONFIGURATION REGISTER 700

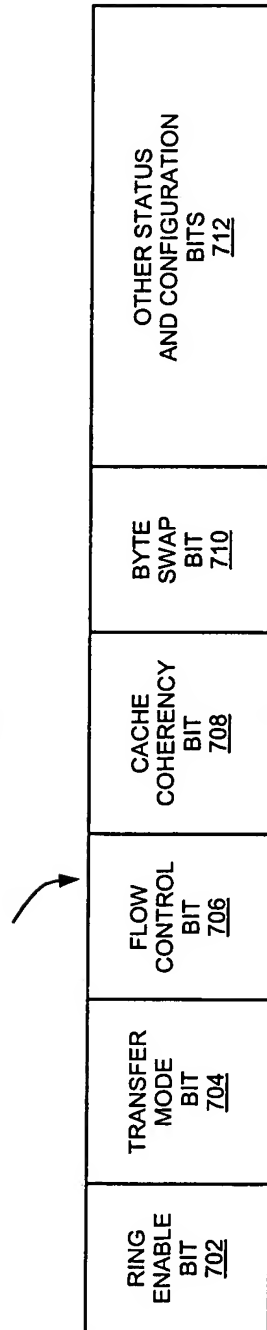
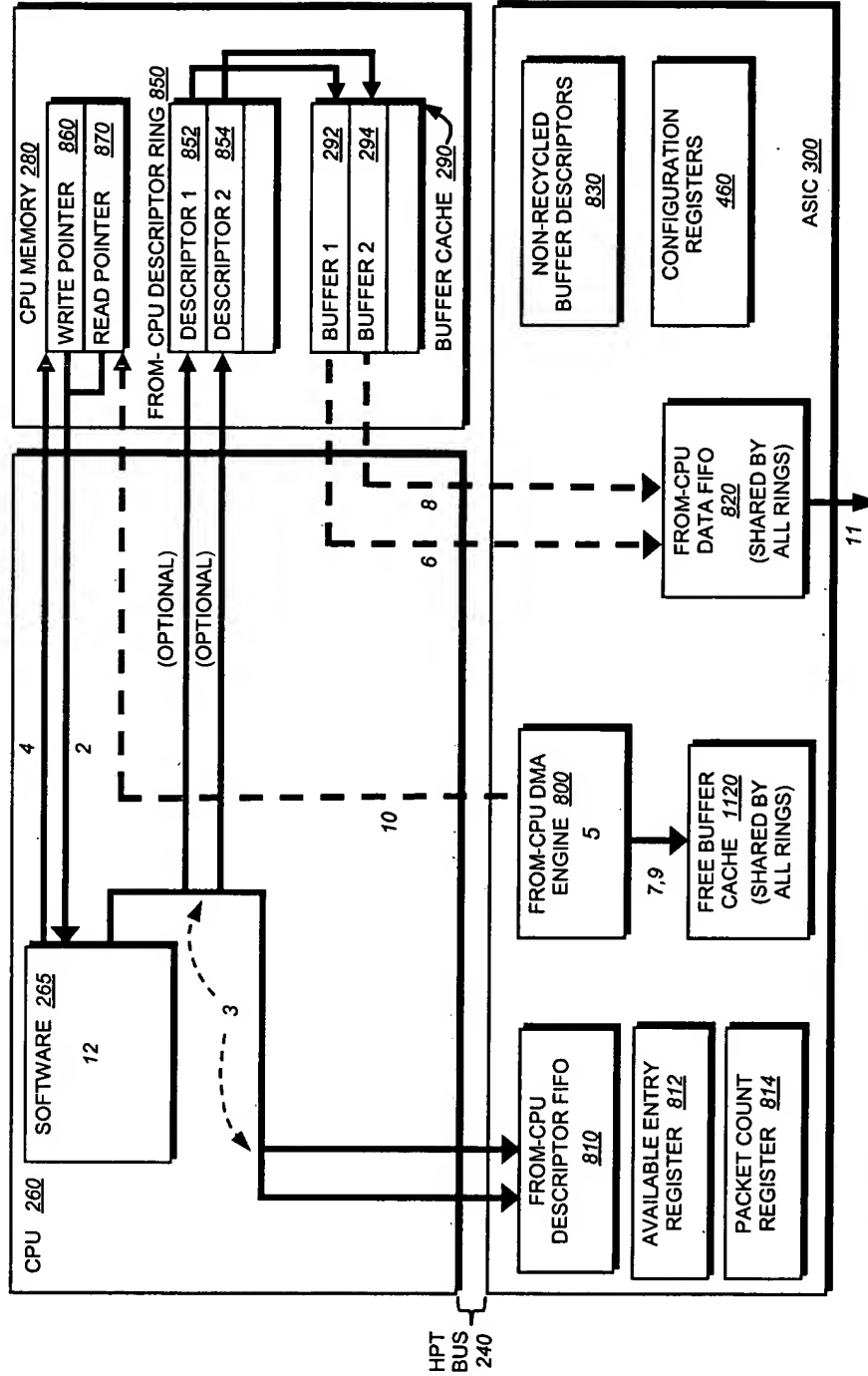


FIG. 7

FROM-CPU DATA TRANSFER



- 1- SOFTWARE DECIDES TO TRANSMIT A PACKET
- 2- SOFTWARE DETERMINES WHETHER SPACE IS AVAILABLE IN THE FROM-CPU DESCRIPTOR FIFO
- 3- SOFTWARE WRITES DESCRIPTOR(S) TO CPU MEMORY (OPTIONAL) AND TO FROM-CPU DESCRIPTOR FIFO
- 4- SOFTWARE UPDATES WRITE POINTER
- 5- DMA ENGINE DETECTS NEW DESCRIPTOR(S) AND ARBITRATES FOR THE FROM-CPU DATA FIFO
- 6,8- DMA ENGINE COPIES DATA FROM DATA BUFFER TO FROM-CPU DATA FIFO
- 7,9- DMA ENGINE ADDS BUFFER TO FREE BUFFER POOL IF REUSE BUFFER ENABLE BIT IS SET
- 10- DMA ENGINE WRITES READ POINTER TO TRANSFER OWNERSHIP OF DESCRIPTORS IF READ POINTER UPDATE FLAG IS SET IN THE DESCRIPTORS
- 11- PACKET EXTRACTED FROM THE FROM-CPU DATA FIFO

FIG. 8

GENERAL CONFIGURATION REGISTER 900

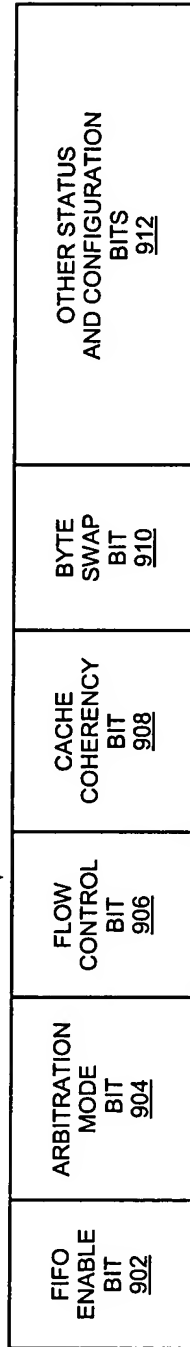


FIG. 9

FROM-CPU DESCRIPTOR FORMAT 1000

FLAGS 1020

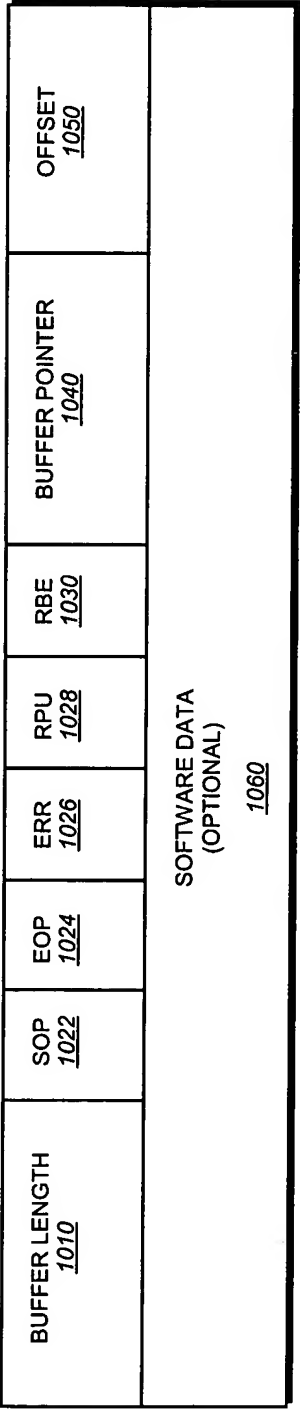


FIG. 10

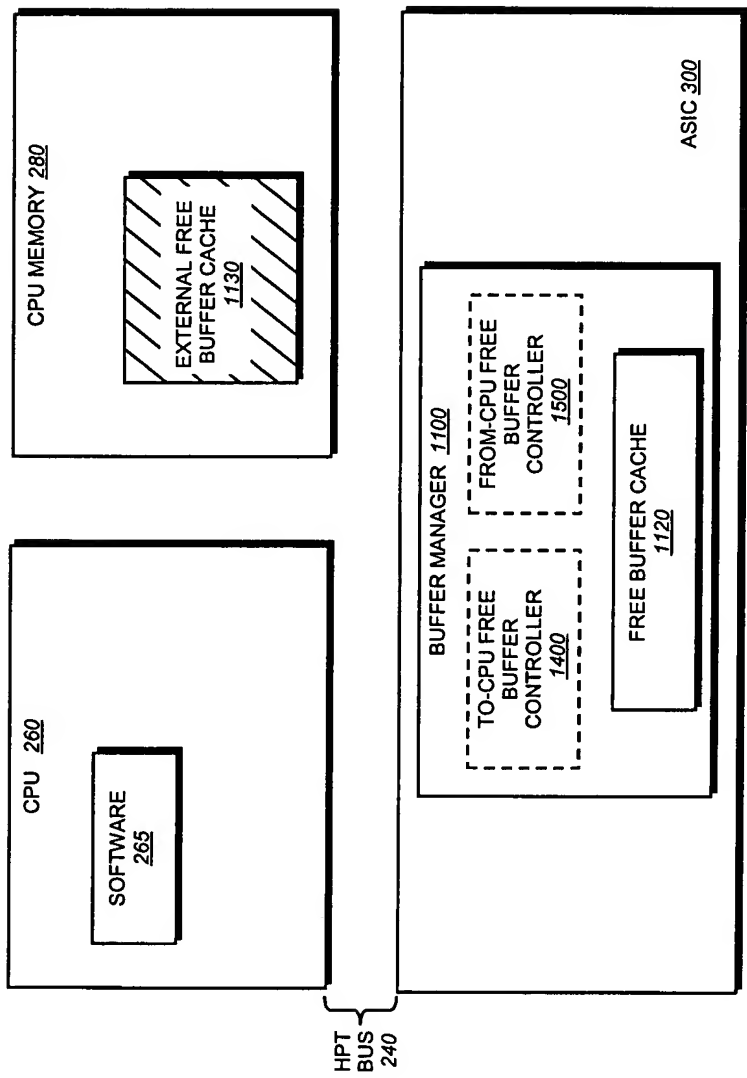


FIG. 11

FREE BUFFER TRANSFER TO/FROM EXTERNAL MEMORY

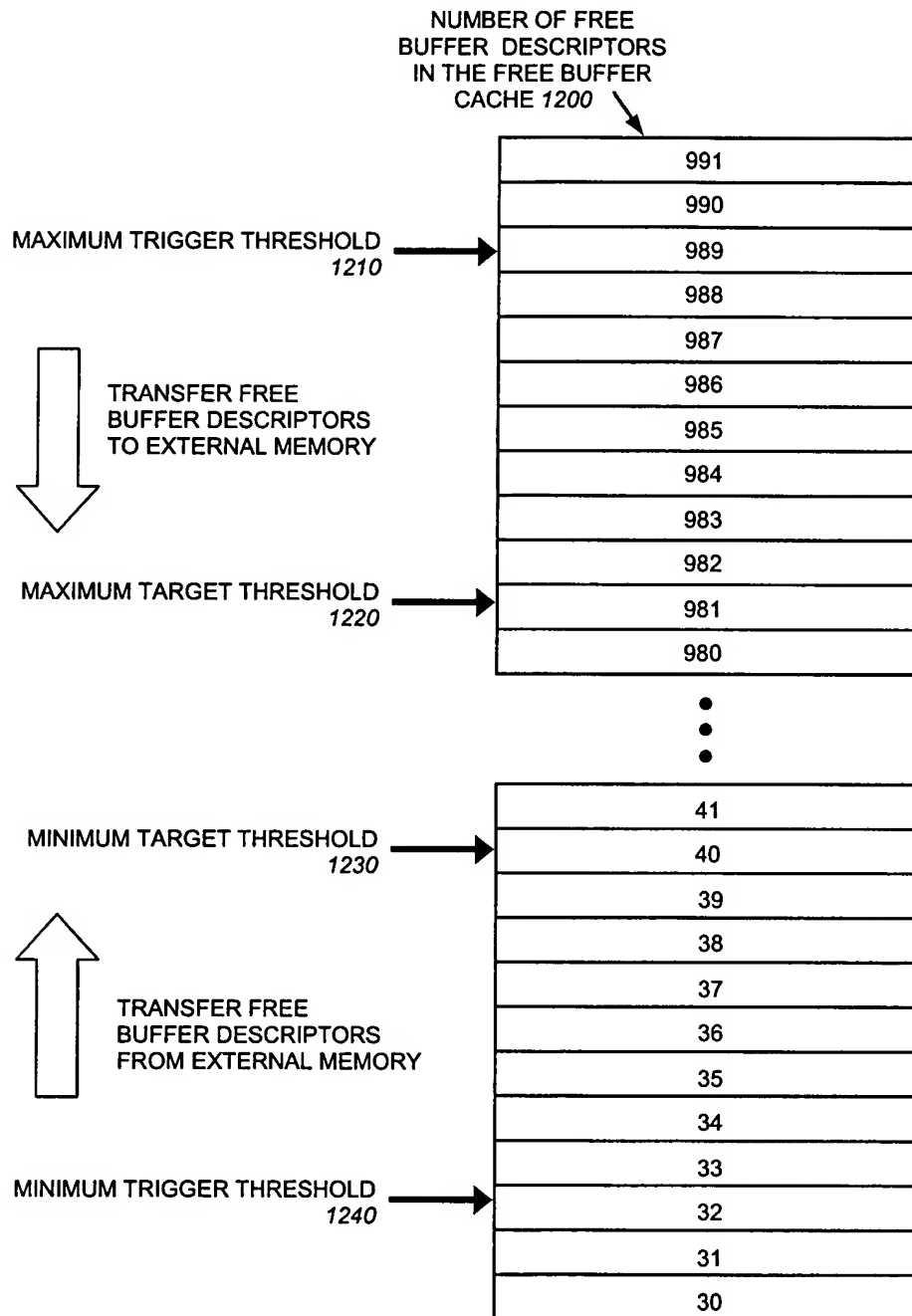


FIG. 12

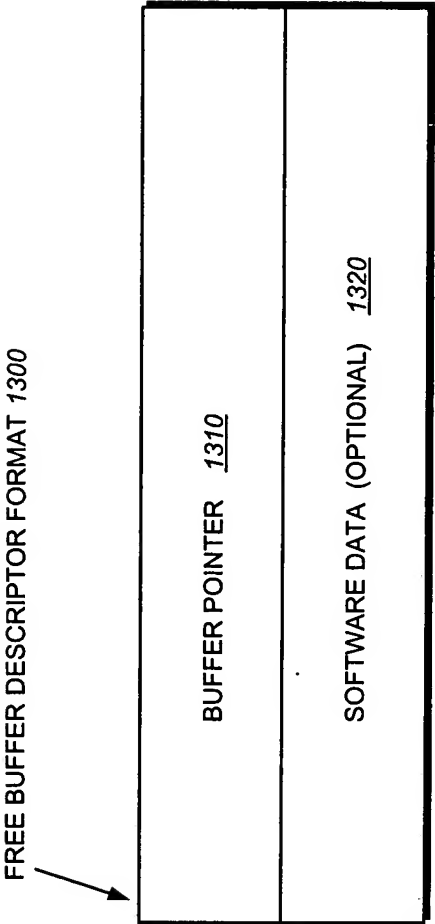
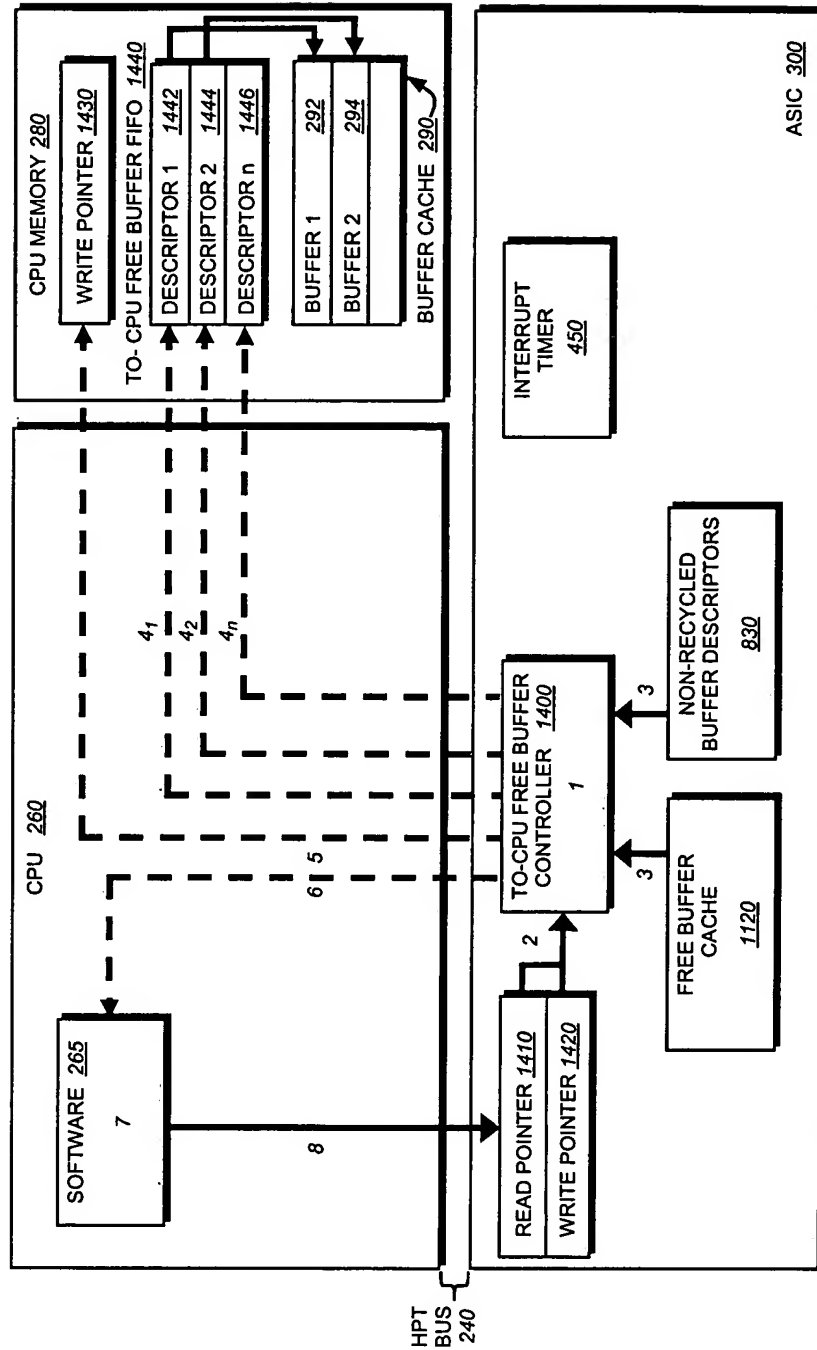


FIG. 13

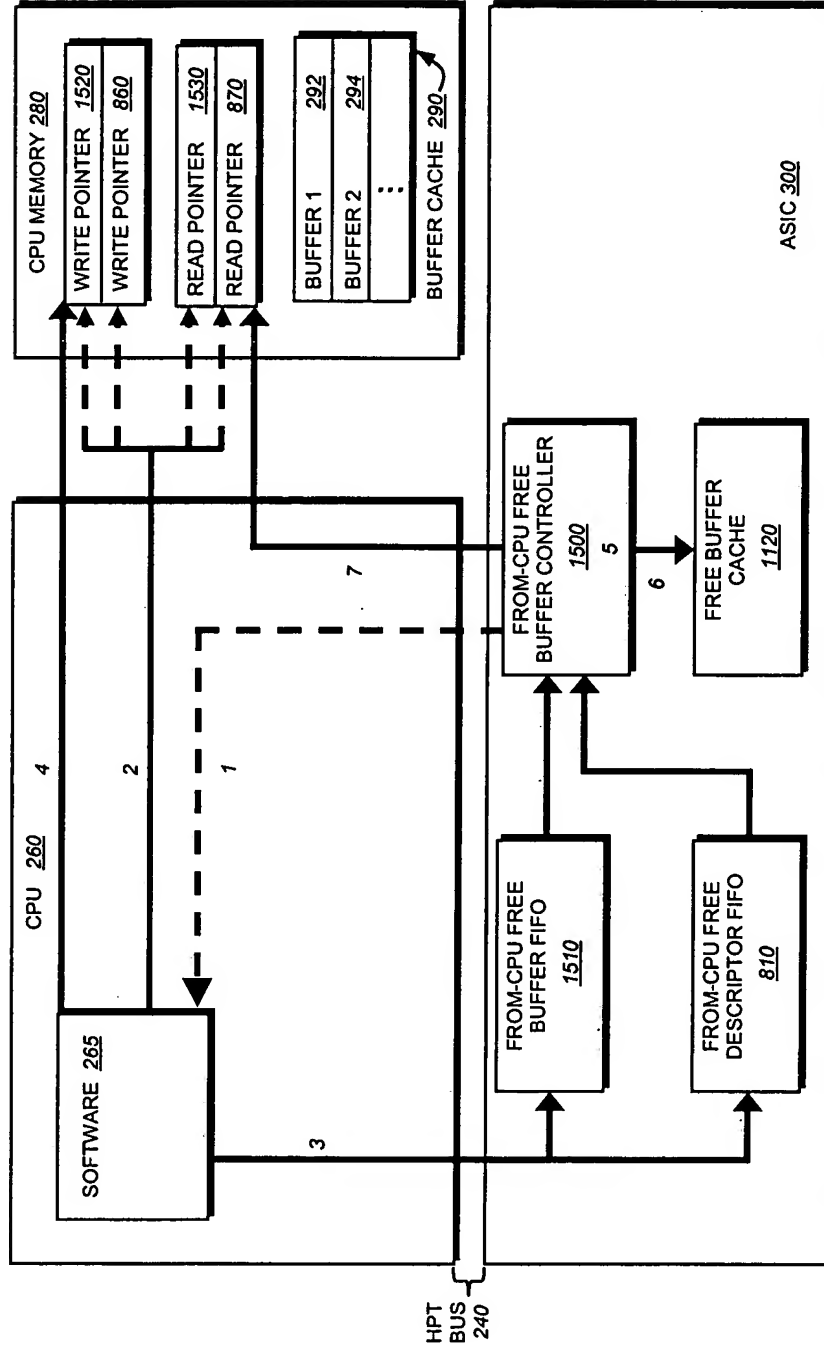
TO-CPU FREE BUFFER TRANSFER



- 1- FREE-BUFFER CONTROLLER DETERMINES WHETHER FREE BUFFER DESCRIPTOR(S) SHOULD BE TRANSFERRED TO THE CPU
- 2- FREE-BUFFER CONTROLLER DETERMINES WHETHER ENTRIES ARE AVAILABLE IN THE TO-CPU FREE BUFFER FIFO
- 3- FREE-BUFFER CONTROLLER ACQUIRES FREE BUFFER DESCRIPTOR(S)
- 4_{1-n} - FREE-BUFFER CONTROLLER WRITES DESCRIPTORS
- 5- FREE-BUFFER CONTROLLER WRITES WRITE POINTER AFTER INTERRUPT TIMER EXPIRES
- 6- FREE-BUFFER CONTROLLER WRITES INTERRUPT
- 7- SOFTWARE READS A DESCRIPTOR FROM THE TO-CPU FREE BUFFER FIFO
- 8- SOFTWARE WRITES READ POINTER

FIG. 14

FROM-CPU FREE BUFFER TRANSFER



- 1- FREE BUFFER CONTROLLER SENDS INTERRUPT TO THE CPU WHEN IT DETERMINES THAT ITS POOL OF FREE BUFFER DESCRIPTORS IS LOW
- 2- SOFTWARE DETERMINES IF THERE IS AN AVAILABLE ENTRY IN THE FROM-CPU FREE BUFFER FIFO OR FROM-CPU DESCRIPTOR FIFO
- 3- SOFTWARE WRITES FREE BUFFER DESCRIPTOR
- 4- SOFTWARE UPDATES APPROPRIATE WRITE POINTER
- 5- FREE BUFFER CONTROLLER DETECTS NEW FREE BUFFER DESCRIPTOR
- 6- FREE BUFFER CONTROLLER ADDS DESCRIPTOR TO FREE BUFFER POOL
- 7- FREE BUFFER CONTROLLER UPDATES APPROPRIATE READ POINTER NEXT TIME A READ POINTER UPDATE FLAG IS DETECTED

FIG. 15